

# Potential Harmful Interactions between Dietary Supplements and Medications : a Structured Literature Search

論文-A1

蔡馨慧 (Hsin-Hui Tsai) 、林香汶 (Hsiang-Wen Lin) 、  
蔡輝彥 (Huei-Yann Tsai)

College of Pharmacy, China Medical University, Department of Pharmacy  
China Medical University Hospital, Taichung, Taiwan.

**Background:** The use of dietary supplement (DS), including herbs, has been on the rise worldwide and might result in incremental use of DS with medications. Due to ambiguous and sometimes conflicting information as well as the lack of evidence based studies on DS, it challenges healthcare professionals to provide the guidance on the appropriate use of DS with medication toward the general public.

**Objectives:** The aim of this study was to retrieve and evaluate existing evidence of potential, harmful DS-medication interactions using a structured literature searching approach.

**Methods:** The structured literature search focused on tertiary literature, secondary literature (e.g. textbooks, folk book review articles), and US governmental web information. The secondary literature was performed on PubMed, EMBASE and Cochrane Library databases (years of 2000-2008, English language, key words related to DS and interactions). All relevant data were extracted using a standardized checklist by one reviewer and then verified by another. Interactions of DS not recommended for human use were excluded. To describe the pairs of interactions, medications (i.e., prescription drugs and main component of the over-the-counter) were classified based on Anatomical Therapeutic Chemical (ATC) Classification System. Mechanisms and severity of interactions between DS and corresponding individual medications were identified using evidence retrieved from Micromedex® or Drug Interaction Facts.

**Results:** Of retrieved six books and 44 review articles, as a result, 1973 pairs of interactions were identified and evaluated. After classifying the medications into 14 groups, there were 631 pairs of interactions between DS and drug classes. The following four groups of medications tended to have interactions with DS: blood and blood forming organs, cardiovascular system, alimentary tract and metabolism, and nervous system. Of 1510 pairs of interactions between DS and an individual medication, 673 interactions (44.6%) were identified the corresponding mechanisms and severity. In particular, 44.6% and 36.7% of the interactions occurred due to concerning the mechanisms of pharmacokinetic and pharmacodynamic, respectively. The top five medications that tended to have interactions with DS were St. John's wort, magnesium, calcium, iron, and ginkgo, whereas the top five combinations of DS and medications should be avoided: L-Tryptophan vs. monoamine oxidase inhibitors (MAOI), St. John's wort vs. protease inhibitors, irinotecan, rasagiline, or voriconazole, respectively.

**Conclusions:** This study conducted a comprehensive evidence-based review for the interactions between DS and medication. The results provide clinical practitioners the extensive evidence on DS-medication interactions, which should be used with caution. It is believed that these interactions could be mitigated by improved communication between pharmacists, the general public, and other health professionals.

關鍵字 : dietary supplements, drug interactions, structured literature search

論文-A2